

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for manufacturing ~~a semiconductor apparatus~~ an active matrix display device comprising the steps of:

forming a semiconductor over a substrate;

forming a mask comprising a resist over the semiconductor to overlap with a portion of the semiconductor; ~~[[and]]~~

adding an impurity element to the semiconductor in accordance with the mask by a doping method; and

forming a pixel electrode over the semiconductor,

wherein the pixel electrode is electrically connected with an area of the semiconductor where the impurity element is added,

wherein an area of the mask is at most 15% of an area of the substrate.

2. (Currently Amended) A method for manufacturing ~~a semiconductor apparatus~~ an active matrix display device comprising the steps of:

forming a semiconductor over a substrate;

forming a mask comprising a resist over the semiconductor to overlap with a portion of the semiconductor; ~~[[and]]~~

adding an impurity element to the semiconductor in accordance with the mask by a doping method with acceleration voltage of at least 80kV; and

forming a pixel electrode over the semiconductor,

wherein the pixel electrode is electrically connected with an area of the semiconductor where the impurity element is added,

wherein an area of the mask is at most 15% of an area of the substrate.

3. (Currently Amended) A method for manufacturing ~~a semiconductor apparatus~~
an active matrix display device comprising the steps of:

forming a first semiconductor layer and a second semiconductor layer over a substrate;

forming a first mask comprising a resist over the second semiconductor layer;

adding a first impurity element having one conductivity to the first semiconductor layer in accordance with the first mask by a doping method;

removing the first mask;

forming a second mask comprising a resist over the first semiconductor layer;

and

adding a second impurity element having a conductivity different from the one conductivity to the second semiconductor layer in accordance with the second mask,

wherein an area of at least one of the first mask and the second mask is at most 35% of an area of the ~~substrate~~. substrate.

wherein the area of the first mask and the second mask are different from each other.

4. (Currently Amended) A method for manufacturing ~~a semiconductor apparatus~~
an active matrix display device comprising the steps of:

forming a semiconductor over a substrate;

forming a mask comprising a resist over the semiconductor to overlap with a portion of the semiconductor and heating the resulted mask; ~~[[and]]~~

adding an impurity element to the semiconductor in accordance with the mask by a doping method with acceleration voltage of at least 80kV; and

forming a pixel electrode over the semiconductor.

wherein the pixel electrode is electrically connected with an area of the semiconductor where the impurity element is added,

wherein an area of the mask is at most 35% of an area of the substrate.

5. (Currently Amended) A method for manufacturing ~~a semiconductor apparatus~~
an active matrix display device comprising the steps of:

forming a first semiconductor layer and a second semiconductor layer over a substrate;

forming a first gate electrode over the first semiconductor layer with a first gate insulator therebetween;

forming a second gate electrode over the second semiconductor layer with a second gate insulator therebetween;

forming a first mask comprising a resist over the second semiconductor layer;

adding an n-type impurity element to the first semiconductor layer in accordance with the first mask and the first gate electrode by a doping method with acceleration voltage of at least 60kV;

removing the first mask;

forming a second mask comprising a resist over the first semiconductor layer;
and

adding a p-type impurity element to the second semiconductor layer in accordance with the second mask and the second gate electrode by a doping method with acceleration voltage of at least ~~[[80kV;]]~~ 80kV.

wherein an area of the first mask is at most 20% of an area of the substrate, and an area of the second mask is at most 15% of an area of the ~~substrate-~~ substrate.

wherein the area of the first mask is larger than the area of the second mask.

6. (Currently Amended) A method for manufacturing ~~a semiconductor apparatus~~
an active matrix display device comprising the steps of:

forming a first semiconductor layer and a second semiconductor layer over a substrate;

forming a first gate electrode over the first semiconductor layer with a first gate insulator therebetween;

forming a second gate electrode over the second semiconductor layer with a second gate insulator therebetween;

forming a first mask comprising a resist over the second semiconductor layer and heating the resulted first mask;

adding an n-type impurity element to the first semiconductor layer in accordance with the first mask and the first gate electrode by a doping method with acceleration voltage of at least 60kV;

removing the first mask;

forming a second mask comprising a resist over the first semiconductor layer and heating the resulted second mask; and

adding a p-type impurity element to the second semiconductor layer in accordance with the second mask and the second gate electrode by a doping method with acceleration voltage of at least ~~[[80kV;]]~~ 80kV.

wherein an area of the first mask is at most 40% of an area of the substrate, and an area of the second mask is at most 35% of an area of the ~~substrate~~ substrate.

wherein the area of the first mask is larger than the area of the second mask.

7. (Currently Amended) A method for manufacturing ~~a semiconductor apparatus~~ an active matrix display device comprising the steps of:

forming a first semiconductor layer and a second semiconductor layer over a substrate;

forming a first gate electrode over the first semiconductor layer with a first gate insulator therebetween;

forming a second gate electrode over the second semiconductor layer with a second gate insulator therebetween;

forming a first mask comprising a resist over the second semiconductor layer;

adding an n-type impurity element to the first semiconductor layer in accordance with the first mask and the first gate electrode by a doping method with current density of at least $15\mu\text{A}/\text{cm}^2$ and with acceleration voltage of at least 60kV;

removing the first mask;

forming a second mask comprising a resist over the first semiconductor layer;
and

adding a p-type impurity element to the second semiconductor layer in accordance with the second mask and the second gate electrode by a doping method with current density of at least $15\mu\text{A}/\text{cm}^2$ and with acceleration voltage of at least ~~[[80kV;]]~~ 80kV.

wherein an area of the first mask is at most 20% of an area of the substrate, and an area of the second mask is at most 15% of an area of the ~~substrate~~ substrate,
wherein the area of the first mask is larger than the area of the second mask.

8. (Currently Amended) A method for manufacturing ~~a semiconductor apparatus~~
an active matrix display device comprising the steps of:

forming a first semiconductor layer and a second semiconductor layer over a substrate;

forming a first gate electrode over the first semiconductor layer with a first gate insulator therebetween;

forming a second gate electrode over the second semiconductor layer with a second gate insulator therebetween;

forming a first mask comprising a resist over the second semiconductor layer and heating the resulted first mask;

adding an n-type impurity element to the first semiconductor layer in accordance with the first mask and the first gate electrode by a doping method with current density of at least $15\mu\text{A}/\text{cm}^2$ and with acceleration voltage of at least 60kV;

removing the first mask;

forming a second mask comprising a resist over the first semiconductor layer and heating the resulted second mask; and

adding a p-type impurity element to the second semiconductor layer in accordance with the second mask and the second gate electrode by a doping method with current density of at least $15\mu\text{A}/\text{cm}^2$ and with acceleration voltage of at least ~~[[80kV;]]~~ 80kV.

wherein an area of the first mask is at most 40% of an area of the substrate, and an area of the second mask is at most 35% of an area of the ~~substrate~~. substrate.

wherein the area of the first mask is larger than the area of the second mask.

9.-19. (Canceled)

20. (Currently Amended) A method for manufacturing a ~~semiconductor apparatus~~ an active matrix display device according to claim ~~[[12]]~~ 1, wherein an area of the substrate is no less than 1 square meter.

21. (Currently Amended) A method for manufacturing a ~~semiconductor apparatus~~ an active matrix display device according to claim ~~[[13]]~~ 2, wherein an area of the substrate is no less than 1 square meter.

22. (Currently Amended) A method for manufacturing a ~~semiconductor apparatus~~ an active matrix display device according to claim ~~[[14]]~~ 3, wherein an area of the substrate is no less than 1 square meter.

23. (Currently Amended) A method for manufacturing a ~~semiconductor apparatus~~ an active matrix display device according to claim [[15]] 4, wherein an area of the substrate is no less than 1 square meter.

24. (Currently Amended) A method for manufacturing a ~~semiconductor apparatus~~ an active matrix display device according to claim [[16]] 5, wherein an area of the substrate is no less than 1 square meter.

25. (Currently Amended) A method for manufacturing a ~~semiconductor apparatus~~ an active matrix display device according to claim [[17]] 6, wherein an area of the substrate is no less than 1 square meter.

26. (Currently Amended) A method for manufacturing a ~~semiconductor apparatus~~ an active matrix display device according to claim [[18]] 7, wherein an area of the substrate is no less than 1 square meter.

27. (Currently Amended) A method for manufacturing a ~~semiconductor apparatus~~ an active matrix display device according to claim [[19]] 8, wherein an area of the substrate is no less than 1 square meter.

28. (New) A method for manufacturing an active matrix display device according to claim 1,
wherein an area of the pixel electrode is not covered with the mask.

29. (New) A method for manufacturing an active matrix display device according to claim 2,
wherein an area of the pixel electrode is not covered with the mask.

30. (New) A method for manufacturing an active matrix display device according to claim 4,
wherein an area of the pixel electrode is not covered with the mask.